Chapter 1 Proposed Project

1.1 Project Description

The California Department of Transportation (Caltrans), in cooperation with the Federal Highway Administration (FHWA) and the Contra Costa Transportation Authority (CCTA), proposes to widen State Route 4 (SR 4), its interchanges, and affected local roadways from approximately 1.3 kilometers (0.8 mile) west of Loveridge Road to approximately 1.2 kilometers (0.7 mile) east of Hillcrest Avenue. The project is proposed to reduce existing traffic congestion, improve traffic operations, encourage high-occupancy vehicle (HOV) use, and accommodate travel demand anticipated through the year 2030. Figure 1.1-1 shows the project location, while Figure 1.1-2 shows the project vicinity.

The proposed project would consist of the following actions, which are described in detail in Section 1.3.1, Build Alternative:

- Widen SR 4 from its existing four lanes to eight lanes, resulting in one HOV lane and three mixed-flow lanes in each direction.
- Preserve sufficient width in the SR 4 median through the Loveridge Interchange to accommodate a possible future transit improvement (by others).
- Modify and/or reconstruct interchanges to accommodate widening at the following locations:
  - Loveridge Road
  - Somersville Road
  - Contra Loma Boulevard–L Street
  - Lone Tree Way–A Street
  - Hillcrest Avenue
- Eliminate partial interchange at G Street and reconstruct the overcrossing.
- Add auxiliary lanes between interchanges from on-ramps to off-ramps.
- Provide ramp metering capabilities, including HOV preferential lanes and California Highway Patrol (CHP) enforcement areas, on on-ramps where feasible.
- Widen the Roosevelt Lane Pedestrian Undercrossing and the Cavallo Road Undercrossing.
- Extend drainage facilities that cross the highway along the project corridor.

This project would conform to improvements constructed by others for the Route 4 / Railroad Avenue Interchange Project at the west end and to improvements being constructed by others under the SR 4 Bypass Project to the east. The segment of SR 4 that currently extends between the SR 4 Bypass and SR 160 will be re-designated as SR 160 once the Bypass is completed. The eastern limit of the SR 4 East Widening project thus extends to the proposed SR 4 / SR 160 interchange, as shown in Figure 1.1-2.

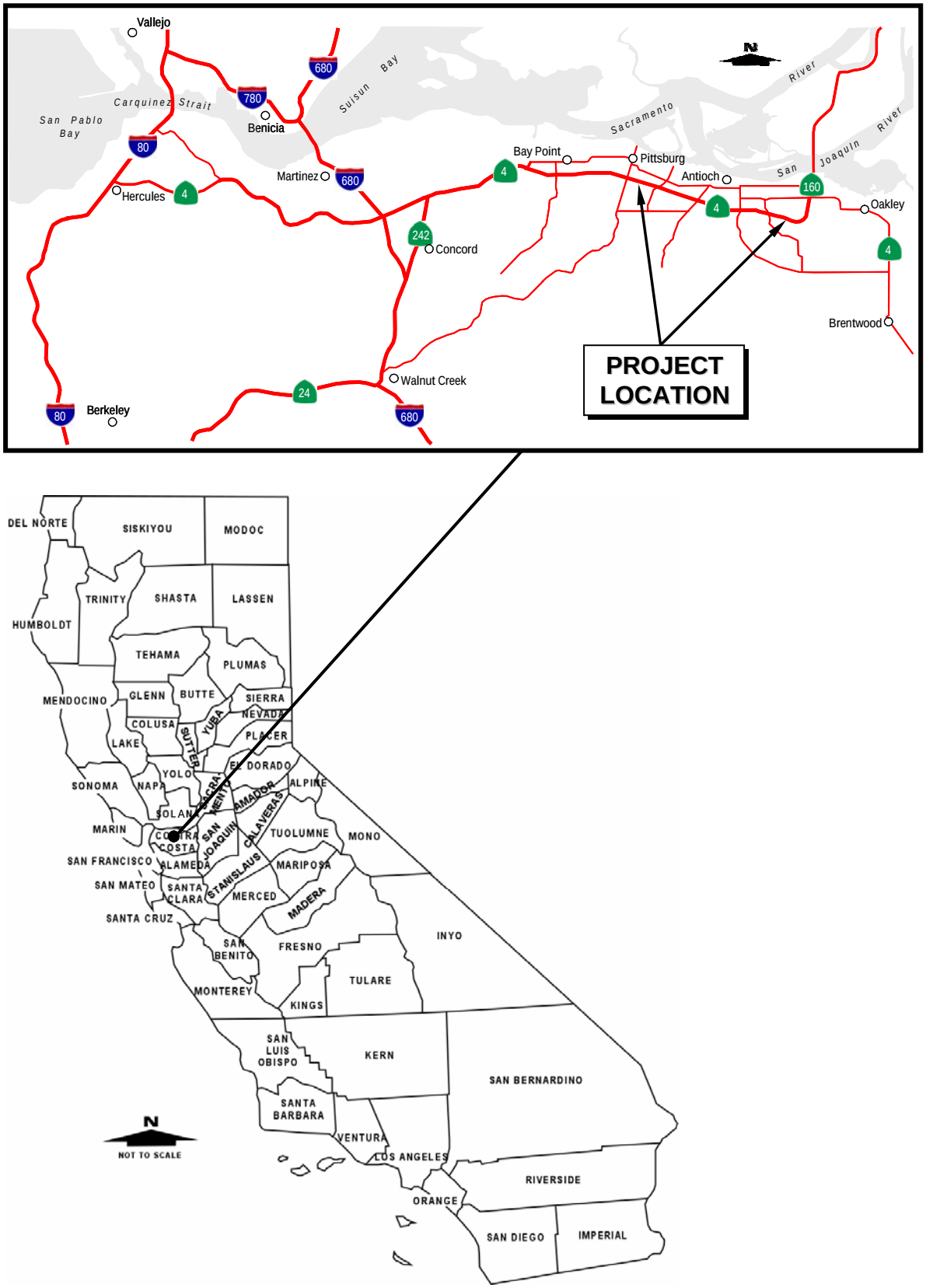


Figure 1.1-1

STATE ROUTE 4 (EAST) WIDENING PROJECT: LOVERIDGE ROAD TO STATE ROUTE 160
04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6)

PROJECT LOCATION MAP

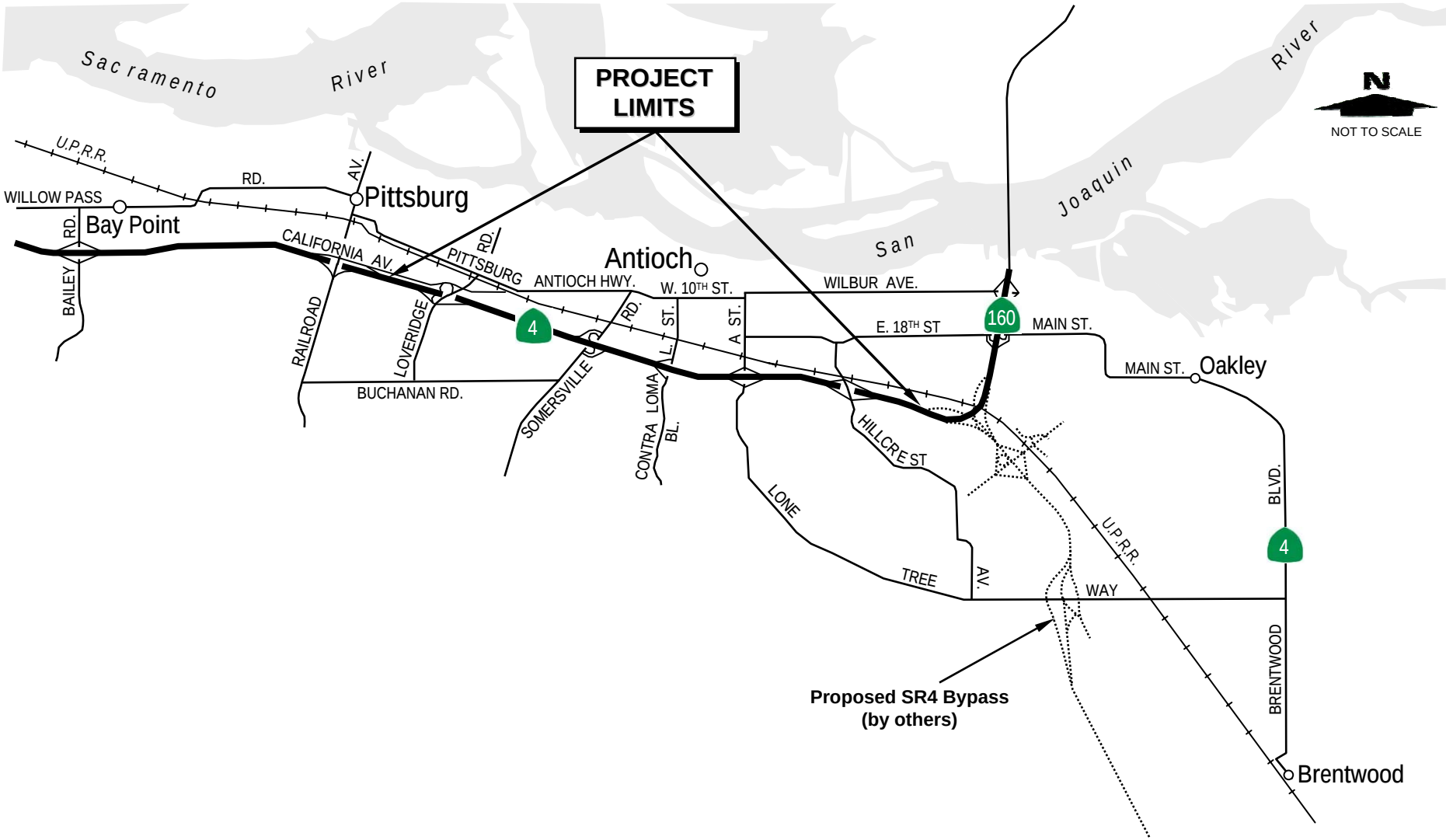


Figure 1.1-2

STATE ROUTE 4 (EAST) WIDENING PROJECT: LOVERIDGE ROAD TO STATE ROUTE 160
04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6)

VICINITY MAP

1.2 Purpose and Need

1.2.1 Project Purpose

The purpose of the proposed project is to reduce existing congestion, improve traffic operations, encourage high occupancy vehicle (HOV) use, and accommodate anticipated travel demand through the year 2030 by providing sufficient right-of-way to accommodate multi-modal transportation.

1.2.2 Project Background

Constructed in the late 1950s and early 1960s, SR 4 serves as an east-west connection between the San Francisco Bay Area and the Central Valley and statewide for recreational, commuter, and goods-movement trips. SR 4 is the primary east-west transportation corridor in Contra Costa County, the only Inter Regional Route of Significance (IRRS) that runs east and west in Contra Costa County, and the only highway link between Central and Eastern Contra Costa County. SR 4 is located in northern Contra Costa County with the Carquinez Strait and the Sacramento River to the north and rolling hills to the south; consequently, few alternative east-west routes exist in the area.

As the other Bay Area highway connections (Interstate 80, Interstate 580 and SR 12) have become more congested, commuters and shippers increasingly are using SR 4 to travel between the regions. Current development in eastern Contra Costa County (East County) is primarily residential, a response to the pressure for additional housing and lack of available sites in other parts of the Bay Area. Within the planning horizon (2030), the trend of residential development in East County is not projected to change substantially. As a result, additional demand will continue to be placed on the regional transportation system, including SR 4, which provides a commuter route for East County residents to the employment centers in central Contra Costa County, Oakland, San Francisco and Santa Clara County. Due to rapid development within East County and an overall increase in interregional traffic, traffic delays along SR 4 have worsened over the past decade. Caltrans data show that westbound SR 4 from Hillcrest to Loveridge rose from the twelfth worst congestion location in the Bay Area in 2001 to the seventh worst congestion location in 2002 (morning peak hour).[1]

Various studies document the need to widen SR 4 from four to eight lanes (including an HOV lane and three mixed-flow lanes in each direction) and to accommodate a future extension of transit east of SR 242 as far as Hillcrest Avenue in Antioch. The Contra Costa Transportation Authority (CCTA), the San Francisco Bay Area Rapid Transit District (BART), Caltrans, the Metropolitan Transportation Commission (MTC), Contra Costa County and local municipalities have long included widening SR 4 and provision for a future transit extension in the SR 4 median in their plans and programs; county voters endorsed these actions with the approval of Measure C in November 1988.

1.2.2.1 Recent Studies

There have been consistent efforts to widen and improve the SR 4 corridor through eastern Contra Costa County over the past 15 to 20 years. The primary studies are summarized in Table 1.2.2-1.

[1] "Marin's commute crawl," *Marin Independent Journal,* September 26, 2003.

Table 1.2.2-1: Recent Studies

Title	Agency & Date	Summary
Route Concept Report for State Route 4	Caltrans, 1985	Identified improvements necessary to maintain adequate level of service on SR 4 from Willow Pass Road in Bay Point to SR 160, including the following: • Widening SR 4 to eight lanes with a wide median for future expansion. • Constructing additional park-and–ride facilities within the SR 4 corridor. • Promoting other Transportation System Management (TSM) measures. The report also indicated that extending transit would help reduce congestion on SR 4 and should be considered as a long-term supplement to freeway widening.
Pittsburg-Antioch Corridor Extension Project	BART, 1988	In 1988, the BART Board of Directors approved an Environmental Impact Statement/Report (EIS/EIR) to extend rail service to the Pittsburg-Antioch area. The document studied alternative transportation modes including busways, light rail, and heavy rail through a number of corridors. The approved Final EIS/EIR identified the preferred alternative as a heavy rail extension to Antioch from the then-current end of the line station in Concord along the SR 4 median as the preferred alternative. Stations were identified at these locations: • North Concord / Martinez, • Pittsburg / Bay Point, • Railroad Avenue in Pittsburg, • Somersville Road in Pittsburg/Antioch and • Hillcrest Avenue in Antioch (eastern terminus). BART's rail extension to North Concord was opened in 1995 and Bay Point was opened for service in December 1996. BART has not identified funding to extend the Pittsburg-Antioch Extension east of the Pittsburg Bay Point Station.
Year 2005 HOV Lane Master Plan	MTC, 2004	Prepared in conjunction with Caltrans and the California Highway Patrol, this plan identified need for HOV lanes on SR 4 between SR 242 and Hillcrest Avenue to meet the mobility needs of East County by 2005.
Project Approval Report for Widening and Lowering of Highway 4 between Willow Pass Road and Bailey Road.	Caltrans, 1991	Report analyzed the ultimate use of seventh and eighth lanes as HOV lanes between SR 242 and Loveridge Road. The analysis concluded that HOV lanes between Willow Pass Road and Bailey Road would be infeasible due to operational constraints. For this reason, the constructed median along SR 4 was not striped for HOV use until the HOV lanes were constructed east of Bailey Road.
East County Action Plan, Resolution 94-1	TRANSPLAN / CCTA, 1994	Identified actions that the jurisdictions of East County could pursue to address regional traffic impacts: • Upgrade SR 4 to full freeway with HOV lanes and median sufficient for BART.

Table 1.2.2-1: Recent Studies

Title	Agency & Date	Summary
		• Promote construction of a BART extension to Hillcrest Avenue. • Implement regional transportation impact fee to help finance SR 4 improvements.
Countywide Comprehensive Transportation Plan	CCTA, 1994	Plan discussed importance of SR 4 to the continued economic development of East County and identified specific future improvements, including the following: • Provide SR 4 between Bailey Road and Railroad Avenue to six mixed-flow lanes plus two HOV lanes. • Provide for BART in the SR 4 median to Hillcrest Avenue. • Open HOV lanes from SR 242 to Hillcrest Avenue. Plan also included support for Travel Demand Management (TDM) efforts administered by Tri Delta Transit, transit operator in Contra Costa County.
SR 4 Corridor Study	CCTA, November 1997	This report identified the need to improve the roadway to eight lanes (three mixed-flow and one HOV in each direction) from Loveridge Road eastward to the Hillcrest Avenue Interchange.
CCTA Strategic Plan Update	CCTA, 1998	Plan nominated projects to be developed in the County and identified funding sources totaling $63.4 million. Also specified need to reconstruct the SR 4 / Railroad Avenue Interchange to provide eight lanes on SR 4 with a 44- to 60-foot-wide median for BART and not to preclude a future BART station between Railroad Avenue and Harbor Street.
Route 4 East Corridor Major Investment Study (MIS)	CCTA, May 1999	MIS study analyzed all travel options along SR 4, which included widened roadway, BART extension and other transit modes. Study confirmed the need to improve SR 4 and provide for future extension of BART farther east beyond Pittsburg / Bay Point. Funding is problematic. Cost to widen SR 4 east of Railroad Avenue to Hillcrest Avenue as an eight-lane facility with a median width to accommodate BART was estimated to be in excess of $230 million (1999 dollars), which exceeds the estimated amount of available funding anticipated over the next 25 years. Since current local, regional, state and federal funding sources were not sufficient to implement the freeway portion of the long-term recommended strategy, a Phase I Implementation Plan was developed to relieve traffic congestion for East County residents. The plan included the following strategies: • Widen SR 4 to eight lanes (three mixed-flow lanes and one HOV lane in each direction) with wide median to accommodate a future BART extension through the Loveridge Road Interchange. • Reconstruct the Railroad Avenue and Loveridge Road interchanges to accommodate the fully widened SR 4. • Widen SR 4 from east of Loveridge Road to the future SR 160 / SR 4 Bypass Interchange to six lanes by paving the existing median to provide an additional lane in each direction (recommended because current ridership forecasts did not justify extending BART within the current 20-year planning horizon). • Provide for ramp metering at the Railroad Avenue and Loveridge

Table 1.2.2-1: Recent Studies

Title	Agency & Date	Summary
		Road interchanges. The MIS report also identified the following issues for future consideration: • Access to the Pittsburg / Bay Point BART station. • Extending BART along the SR 4 corridor. • Periodic reviews of the feasibility of commuter rail. • Continued protection of right-of-way for future widening. • Land use development policies that support transit and HOV use.
Contra Costa Express Bus Study	Contra Costa Transportation Authority and Bus Transit Coordinating Committee, 2001	This study proposes an express bus system among regions of Contra Costa County and neighboring counties. The year 2020 express bus scenario for the East to Central corridor recommends that HOV ramps and lanes [proposed in the SR 4 (East) Widening Project] serve to expand the current Tri Delta Route 300 for travel time improvements from Oakley to Bay Point (60 minutes to 34 minutes) and Brentwood to Shadelands (70 minutes to 46 minutes).
Transportation Corridor Concept Report (TCCR) #6 SR 4 (Preliminary draft)	Caltrans, District 4 with input from the Contra Costa Transportation Authority (CCTA) and TRANSPLAN. 2002	The TCCR utilizes the 25-year planning strategy set forth in the Regional Transportation Plan (RTP), the 20-year Highway Operational Concept Configuration. Projections and the 25-year percentage increase in Average Daily Traffic (ADT) in order to identify future capacity and operational improvements to reduce congestion and delay in the SR 4 corridor.
SR 4 East Corridor Transit Study	CCTA and BART, 2002	This study proposes that the future Pittsburg/Antioch BART alignment should follow the SR 4 median east to the Loveridge Road Interchange, where it would turn northeast on an aerial structure over the Loveridge Road Interchange and proceed within an existing UPRR team track right-of-way to continue along the existing Union Pacific Mococo Line right-of-way.
Draft Visual Design Guidelines Route 4 East Corridor	CCTA, 2003	This study provides direction to highway designers and others involved in the aesthetic design treatments and construction of highway elements – including soundwalls, retaining walls, bridge structural elements, and slope paving – to provide a uniform visual driving experience along SR 4 from Railroad to Hillcrest Avenue.

The numerous studies listed in Table 1.2.2-1 demonstrate the continuing commitment on the part of CCTA, Contra Costa County, Caltrans, BART, and the MTC to widen SR 4, add HOV lanes, and/or provide for a transit extension in the median.

To date, BART has not identified funding to construct the Pittsburg-Antioch Extension east of the Pittsburg-Bay Point Station. The next segment would likely extend BART to a new station at SR 4 / Railroad Avenue. A ridership study was performed as part of the 1999 *Route 4 Corridor MIS.* While extending BART further east was not warranted within the 20-year planning horizon, strong sentiment exists among the public and elected officials that any widening of SR 4 should include a

median with sufficient width to accommodate BART in the future. The 2002 *SR 4 East Corridor Transit Study* by CCTA and BART identifies the preferred BART right-of-way as along the median of SR 4 to the vicinity of Loveridge Road, where the BART alignment would then cross over the Loveridge Road Interchange and proceed northeast along the current Union Pacific Railroad (UPRR) team track to continue north of and parallel to SR 4 within the existing UPRR Mococo right-of-way.

1.2.2.2 Voter and Legislative Mandates

In November 1988, Contra Costa County voters approved a local one-half cent sales and use tax measure, Measure C, to address specific improvements to the transportation system of Contra Costa County. The Measure C expenditure plan earmarked $40 million for SR 4 East and $138 million for BART (1988 dollars). The CCTA 1988 Strategic Plan identified approximately $63 million (1997 dollars) in funding available through the year 2005 for improvements in the East County corridor through a combination of BART extension and commuterway funds.

1.2.3 Project Need

The SR 4 corridor from west of Loveridge Road to east of Hillcrest Avenue is currently facing severe problems which include traffic congestion, inefficient energy use, deteriorating air quality and deteriorating levels of traffic safety. Correcting conditions on SR 4 is a necessary component of the overall program to improve transportation through northern Contra Costa County. To improve traffic conditions of this corridor, the following needs must be addressed:

- Reduce existing and projected traffic congestion.
- Accommodate future travel demand
- Reduce travel time and delay.
- Reduce vehicular traffic on local streets.
- Encourage use of carpooling during peak travel hours.
- Encourage public transit use.
- Improve system reliability for freight movement.
- Reduce energy use and improve local and regional air quality.
- Improve traffic safety.
- Preserve right-of-way.

The following subsections explain these issues in more detail to demonstrate the need for the improvements that would be provided by the proposed project. Section 2.1.6 discusses present and future SR 4 conditions with and without the project, and the tables in Appendix F present the data basis for evaluating current and future conditions.

1.2.3.1 Reduce Congestion

Much of the SR 4 corridor from Loveridge Road to Hillcrest Avenue is currently very congested and traffic operations will continue to deteriorate unless measures are taken to alleviate congestion. Even though most of the arterial intersections near the project area are currently operating below capacity, these are also expected to deteriorate with future traffic congestion.

In its existing configuration of two lanes in each direction, SR 4 is currently operating under substantial congestion with annual average daily traffic volumes varying from 37,500 (from East of Hillcrest Avenue to SR 160) to 101,000 (from Somersville Road to Contra-Loma Blvd.-L St.). (See Figure 2.1.6-1 in Chapter 2 for a more detailed breakdown of traffic volumes along SR 4 segments in the study area.) Measures that are used for assessing traffic congestion in the project area include vehicle speed, delay, and level of service. Level of service (LOS) is a rating of congestion and varies from LOS A to LOS F, where LOS A represents uncongested, free-flow conditions and LOS E represents very congested conditions. At LOS F, a roadway segment is over capacity and operates at stop-and-go conditions.

Most of SR 4 in the project area is carrying traffic volumes that exceed capacity with resulting vehicle speeds as low as 11 kph (7 mph). During the morning peak hour, westbound SR 4 operates at LOS F (stop-and-go conditions) from A Street to Loveridge. During the evening peak hour, eastbound SR 4 operates at LOS F from Loveridge to Somersville as well as in the vicinity of Loveridge in the westbound direction. In comparison, most of the local streets and intersections in the corridor currently operate at LOS D or better. LOS D, while somewhat congested, is considered acceptable service.

By 2030, unless capacity improvements are made, conditions along SR 4 will have further deteriorated, with almost all segments operating at LOS F during both morning and evening peak periods. Widening SR 4 and providing HOV lanes would reduce congestion and improve predicted LOS along the freeway from Loveridge Road through the SR 160 / SR 4 Bypass Interchange.

1.2.3.2 Accommodate Future Travel Demand

As demonstrated by Figure 1.2.3-1, existing SR 4 from west of Loveridge Road to east of Hillcrest Avenue will not be able to serve projected 2030 traffic demand[2]. The existing facilities can serve, at a maximum, only 85 percent of the projected demand for westbound lanes in the morning peak hour and for eastbound lanes in the evening peak hour. When traffic goes over capacity, traffic flow breaks down and queues build up. Such situations give rise to bottlenecks that further drastically reduce the capacity of the freeway, resulting in queues that can continue for hours.

On SR 4, absent capacity improvements, anticipated traffic queues would reach 17 kilometers (nearly 11 miles) in length westbound and 12 kilometers (nearly 8 miles) eastbound under 2030 travel demand. The westbound morning and evening peaks would overlap, and peak-period congestion would continue for fully 13 hours. Therefore, in reality, due to the build-up of bottlenecks and their corresponding reduction in roadway capacity, the section of SR 4 under consideration would actually be able to handle a much smaller percentage of traffic than the estimated 85 percent.

[2] These numbers are based on the estimate prepared by Fehr & Peers (June 2004)

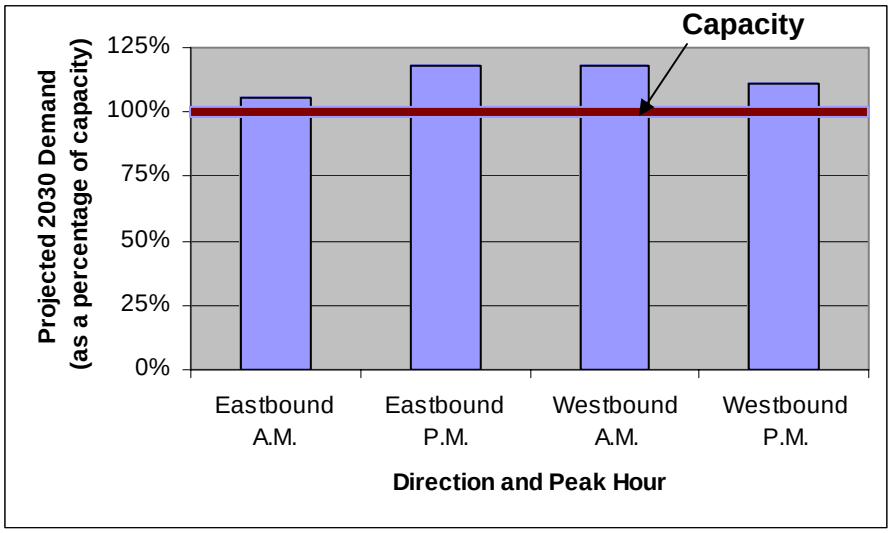


Figure 1.2.3-1: 2030 Projected Demand and Capacity on SR 4

1.2.3.3 Reduce Travel Time and Delay

Traffic congestion and lower travel speeds, especially during peak periods, lead to greater delay and higher overall travel times. Continued delays and increased travel times along SR 4 can therefore be expected unless improvements are carried out. Traffic studies conducted for the present project (June 2004) compared modeled future average travel speeds on SR 4 with actual surveyed travel speeds for the eastbound evening peak hour and westbound morning peak hour from west of Loveridge Road to east of Hillcrest Avenue. As shown in Table 1.2.3-1, year 2030 average travel speeds in the eastbound evening commute are expected to be 15 kph (10 mph) slower compared to current conditions. Travel speeds in the morning westbound direction are expected to improve somewhat (10 kph or 6 mph increase in average speed), but this is owing to the completion of SR 4 widening west of Loveridge Road. Overall, conditions westbound would remain severely congested east of Railroad Avenue.

Table 1.2.3-1: SR 4 East Corridor Peak Hour Travel Speeds

Peak Direction	Travel Speed Obtained by Survey in kph (mph)	Forecast 2030 Travel Speeds in kph (mph)
Eastbound (P.M. peak)	81.3 (50.5)	66.8 (41.5)
Westbound (A.M. peak)	38.0 (23.6)	48.1(29.9)*

*Although still extremely congested, westbound 2030 travel speed is expected to improve slightly compared with existing conditions because of completion of construction west of Loveridge Road.
Source: Fehr & Peers Associates, June 2004

1.2.3.4 Reduce Vehicular Traffic on Local Streets

As congestion increases along SR 4, some through traffic is diverted to local streets as motorists seek alternate routes. This increase in traffic on local streets causes deteriorations in level of service at local streets and intersections. Traffic studies for the present project (June 2004) estimated the LOS at local intersections along the corridor to assess congestion on local streets. To depict existing conditions, 30 relevant intersections were studied for 2001, while 28 intersections were evaluated for 2030; fewer intersections needed to be studied for the future condition because some intersections would be removed and some new intersections would be added as a result of the project.

Study results summarized here are depicted in Tables F-3, F-18, and F-19 in Appendix F. The study estimated that for existing conditions during the morning peak hour, all 23 signalized intersections studied operated at LOS D or better, while only two of the seven unsignalized intersections operated at LOS F. During the evening peak hour, however, one of the signalized intersections (Loveridge Road / Pittsburg Antioch Highway) operated at LOS F; and one unsignalized intersection operated at LOS E and another at LOS F (A Street / Bryan Avenue / Texas Street). All the other intersections operated at LOS D or better.

By 2030, conditions at these local intersections in the project vicinity would be greatly deteriorated. Of the 28 intersections studied for the year 2030, 19 are intersections at interchanges and the others are isolated intersections. During morning peak-hour conditions, nearly half of the studied intersections at interchanges (eight of the 19) would be expected to operate at LOS F or E, while the rest would operate at LOS D or better. Operations were similar during evening peak-hour conditions, when eight of the intersections also would operate at LOS F or E, and the rest at LOS D or better.

The 2030 analysis projected morning peak hour LOS F for six of the nine isolated intersections, LOS E for another, and LOS D or better only for the remaining two intersections. During the evening peak hour, fully eight of the nine intersections would operate at LOS F or E (four at F and four at E); only one intersection would operate acceptably (at LOS C). Improving freeway conditions on SR 4 would reduce through traffic diversion to local streets and intersections, thereby improving their levels of service.

1.2.3.5 Encourage Carpooling

Although high occupancy vehicles (HOV) regularly use the project corridor, there are no HOV lanes in this part of SR 4, and thus there is little encouragement for additional transit use or carpooling. HOV lanes have been constructed on SR 4 from the SR 4 / SR 242 Interchange to the west of the Railroad Avenue Interchange. Current construction at the Railroad Avenue Interchange is extending these HOV lanes as far as the west limit of the proposed project. Extending the HOV lanes further east would increase potential HOV travel time savings during commute periods, providing incentives to increase vehicle occupancy.

Construction of HOV lanes on SR 4 would be consistent with previous corridor planning including the *East County Action Plan* and the *SR 4 Final Corridor Study*. The *Route 4 East Corridor MIS* estimated the 1998 average vehicle occupancy rate at approximately 1.08 passengers per vehicle. In December 1994, the East County planning committee (TRANSPLAN) of the Contra Costa Commute Alternative Network (CCCAN) adopted the *East County Action Plan*, which designated SR 4 as a Route of Regional Significance (RRS) and established Traffic Service Objectives (TSOs) for this facility. One TSO is to increase the Peak Hour Occupancy rate to 1.25 passengers per vehicle or greater.

Traffic studies conducted for the present project (June 2004) documented the results of a vehicle count to determine the proportions of total vehicles with two or more occupants during the May 2001 morning and evening peak periods at the G Street overcrossing. The study reported that 14.2 percent of westbound morning commute vehicles had two or more occupants while 18.4 percent of eastbound evening peak hour vehicles had two or more occupants. Extending the HOV lanes east of Loveridge Road would create an incentive for additional motorists to carpool.

1.2.3.6 Encourage Public Transit Use

The proposed project would include sufficient right-of-way to accommodate a future transit extension (by others) in the SR 4 median through the Loveridge Interchange. Alternatively, or as an interim measure, the additional transit right-of-way, HOV lanes, and provision for ramp metering and HOV bypass lanes on the on-ramps would encourage near-term transit use by accommodating express bus or other transit options throughout the corridor.

1.2.3.7 Improve System Reliability for Freight Movement

SR 4 carries regional, state, and interstate freight movements among port, rail, and air facilities located in the Bay Area, Central Valley and statewide. It serves as one of two primary east-west connections between the Bay Area and state highway system trunk routes. Major businesses, manufacturers, and several refineries are located along and near SR 4, and the roadway serves local and regional employers. Maintaining and improving SR 4 and upgrading it to accommodate project travel demand are therefore important to the economic well being of the corridor and northern Contra Costa County. Extended interruption or worsening of traffic operations affecting corridor goods movements could result in adverse effects on the local economy and, in time, could affect the regional and statewide economy as well. Improving roadway operations would help maintain the economic viability of the corridor.

1.2.3.8 Reduce Energy Consumption and Improve Air Quality

The congested traffic conditions in SR4 lead to inefficient energy consumption and increased air pollution. Traffic congestion along SR 4 during peak traffic periods results in reduced speeds and stop-and-go traffic through the unimproved segments in the corridor, particularly in the western part of the corridor from Somersville Road to G Street. This results in inefficient fuel consumption. Inefficient burning of fuel and stop-and-go traffic also result in higher levels of air emissions. If

traffic conditions continue to deteriorate as predicted with increased travel demand, higher levels of air pollutant emissions will offset gains achieved through use of lower-emissions vehicles and fuels.

Improvements to the SR 4 traffic operations proposed by this project would reduce energy consumption and improve air quality in the study area by reducing pollutant emissions. Increasing freeway capacity to meet projected travel demand is expected to reduce congestion without further increasing daily corridor traffic. Based on the traffic analyses, the proposed project would increase peak-hour traffic, but because the freeway would be widened to serve only planned growth, it would not increase total daily traffic in the corridor. See Section 2.2.7, Energy, and Section 2.1.2, Growth Inducement, for more details.

1.2.3.9 Improve Safety

The project reviewed the three-year accident history, from October 1, 1999 through September 30, 2002, for the SR 4 corridor from just west of the Loveridge Road Interchange east to SR 160 for both the mainline and the ramps. The most prevalent type of accident that occurred during this time period appeared to be rear-end collisions, which is consistent with the highly-congested traffic conditions observed. Most of the collisions occurred between the off- and on-ramps of an interchange.

Actual accident rates were compared to the state-wide averages for similar facilities. Actual accident rates for both directions of mainline SR 4 and nine of its 23 ramps were found to be higher than the state-wide average for similar facilities. The 1996-1998 accident data presented in the Project Study Report for this project show that SR 4 accident rates during that period were less than the state average. Thus, traffic safety appears to be declining and accident rates increasing along this stretch of the corridor.

There were four fatal accidents on the mainline; two in the eastbound and two in the westbound direction, during the 1999-2002 period. There were 357 and 425 total accidents (including both fatality accidents and injury accidents) on the mainline, in the eastbound and westbound directions respectively. Fifty-four percent of total accidents on the mainline occurred in the westbound direction and 46 percent in the eastbound direction. Percentages of mainline accidents tabulated by collision type are shown in Figure 1.2.3-2.

Locations with high accident concentrations identified in the study area are:

- Vicinity of the Loveridge Road Interchange between the on- and off-ramps.
- Westbound off-ramp to California Avenue at the Loveridge Road Interchange.
- Eastbound approach to the Somersville Road Undercrossing.
- Westbound on- and off-ramps at the Somersville Road Interchange.
- SR 4 mainline, west of G Street.

In reviewing the individual accident records, the majority of accidents occurring along SR 4 were those typically associated with excessive speed and congested conditions.

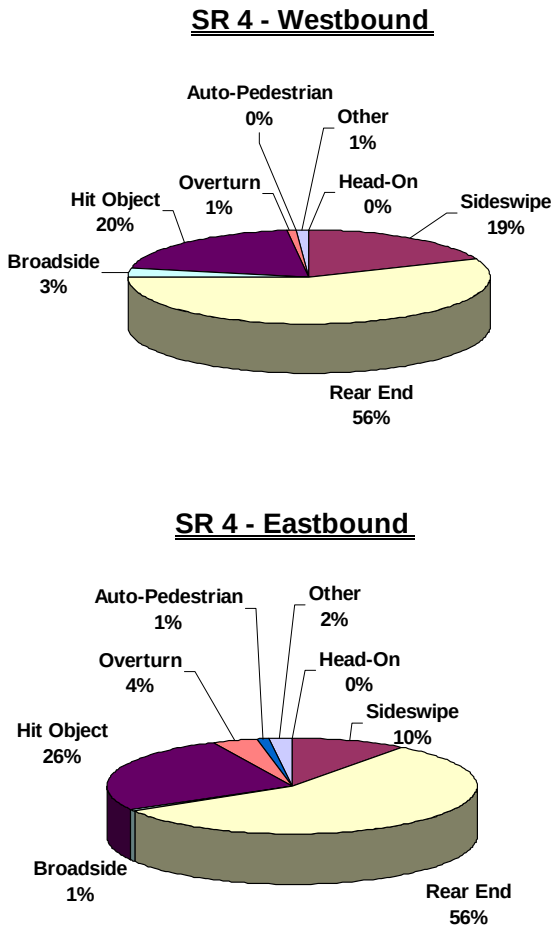


Figure 1.2.3-2: Percentages of SR 4 Mainline Study Area Accidents [1999-2002] by Collision Type

Specific locations where conditions do not meet current design standards and that would be improved by the proposed project include the following:

- Vicinity of the Loveridge Road Interchange between the on- and off-ramps: At this location, the existing vertical sag curve and outside and inside shoulders do not meet current design standards. The existing Loveridge Road overcrossing structure has closed-end abutments, which restrict lateral sight distance and give a closed-in feeling.
- Eastbound approach to the Somersville Road Undercrossing: The existing outside shoulder width at this location is about 2.5 meters (8.2 feet), which is less than the current standard.
- SR 4 Mainline, west of G Street: This section of freeway is along a 914-meter (3,000-foot) radius curve with 2.4-meter (8-foot) outside shoulders, which are less than current shoulder standards. The existing G Street overcrossing structure has closed-end abutments.

Improvements proposed by this project are expected to reduce the frequency of accidents along this segment of SR 4. Providing an eight-lane divided facility would reduce congestion and therefore the rate of rear-end and sideswipe accidents. Proposed auxiliary lanes would help facilitate merging movements to and from the freeway. In addition, the number of accidents involving hit objects is expected to decrease because standard shoulders and flatter horizontal curves would be provided. Wider shoulders would also give drivers more space to recover from incidents and would improve sight distance approaching ramp junctions.

1.2.3.10 Preserve Right-of-Way

With growing development pressure in the corridor, it will be increasingly difficult in the future to procure right-of-way for future roadway and transit improvements. Completion of the environmental process for the present project would enable CCTA, Contra Costa County, and local cities to establish a plan line and formal right-of-way limits for phased widening of SR 4 in local general plans and zoning processes. Without such formal designation of planned future roadway facilities, development pressures may raise the costs of the project or even preclude it altogether. In the *SR 4 East Corridor Transit Study,* CCTA and BART identify the SR 4 median as the preferred route for a future transit extension (by others) through the Loveridge Road Interchange. The SR 4 project would preserve the right-of-way for such future transit to be implemented when ridership demand warrants. Alternatively, or as an interim measure, the right-of-way could accommodate express bus or other transit options.

Examining current and future capacity and operational deficiencies and safety concerns demonstrates the urgent need for improvements to SR 4 from west of Loveridge Road to east of Hillcrest Avenue. Users of the roadway have to endure long queues, travel delays, and stop-and-go conditions during peak periods. The accident rate in many sections of this corridor is higher than the statewide average. Effects of corridor traffic congestion, such as increased air pollutants or unreliability for freight movement, affect the region beyond the corridor—and may extend to the statewide economy. All of the existing problems identified will continue to deteriorate in the future because the system is incapable of handling future (2030) travel demand. The improvements included in the proposed project would address these needs.

1.3 Alternatives

1.3.1 Build Alternative

This section describes the features of the SR 4 East Widening project Build Alternative and refers to the figures in Appendix A.

1.3.1.1 Additional Lanes and Project Limits

The SR 4 (East) Widening Project Build Alternative would widen SR 4 from its current four lanes to an eight-lane facility providing one HOV and three mixed-flow lanes in each direction. The project limits extend from approximately 1.3 kilometers (0.8 mile) west of the Loveridge Road Interchange to approximately 1.2 kilometers (0.7 mile) east of the Hillcrest Avenue Interchange. The SR 4 Widening project would conform to improvements constructed under the Route 4/Railroad Avenue Interchange Project (by others) at the west end and to improvements being constructed under the SR 4 Bypass Project (by others) to the east. The SR 4 Bypass project is constructing a new roadway that bypasses the communities of Oakley and Brentwood along the portion of SR 4 that is east of SR 160. Once the SR 4 Bypass project is complete, the portion of SR 4 that currently lies between the SR 4 Bypass and SR 160 will be re-designated as SR 160. Thus, the eastern limit of the present project extends to the proposed SR 4 / SR 160 interchange, as shown in Figure 1.1-2. Widening SR 4 under the Build Alternative would require reconstructing the interchanges within the project limits and would include the addition of auxiliary lanes between interchanges to facilitate on and off traffic movements.

1.3.1.2 Alignment Changes

The alignment of the widened SR 4 mainline would be shifted southward of the existing right-of-way west of Loveridge Road (Figure A, Sheet 1 of 12) and northward between Loveridge Road and Century Boulevard (Figure A, Sheet 2 of 12). The widened mainline would stay within the existing right-of-way for the remainder of the project corridor. Interchange improvements would require additional right-of-way at the following locations: Loveridge Road, Somersville Road, Contra Loma Boulevard–L Street, Lone Tree Way–A Street, and Hillcrest Avenue. In the vicinity of Contra Loma Boulevard–L Street and G Street, the horizontal curve radius would be increased to improve sight distance (Figure A, Sheet 7 of 12).

The widened SR 4 vertical alignment would typically follow the existing profile, except in the vicinity of the following interchanges:

- Loveridge Road, where the vertical curves would be extended to improve sight distance and to accommodate a possible future transit improvement (by others) by meeting BART vertical alignment design criteria and standards;
- Somersville Road and Contra Loma Boulevard - L Street, where the profile would be raised as much as 2 meters (6.6 feet); and
- G Street, where the profile would be lowered 0.6 meter (2 feet) to meet vertical clearance requirements.

Profile drawings are included as Figure B in Appendix A.

1.3.1.3 Median Widening

The SR 4 median would be widened to accommodate a possible future transit improvement (as a separate project by others) eastward from the current Pittsburg / Bay Point terminus to the vicinity of the Loveridge Road Interchange (Figure A, Sheet 2 of 12). At this point, according to the *SR 4 East Corridor Transit Study* (CCTA and BART, 2000), the future transit alignment would exit the freeway median. At the western project limit (Figure A, Sheet 1 of 12), the median would be 41.7 meters (about 137 feet) wide, which conforms to improvements constructed at the SR 4 / Railroad Avenue Interchange, and would taper to 19.4 meters (about 64 feet) wide east of Loveridge Road. The 19.4-meter-wide median would provide sufficient width for the new Loveridge Road overcrossing structure columns and would accommodate a possible future transit track (by others), a barrier separating transit and highway traffic, and a 3.0-meter (10-foot) wide shoulder in each direction. The 19.4-meter-wide median would continue approximately 100 meters (328 feet) east of the proposed new Loveridge Road overcrossing structures, where it would begin a 600-meter (about 0.4 mile) transition down to a 10.8-meter (about 35-foot) wide median. The median would narrow to a reduced width of 7.8 meters (about 26 feet) between G Street and L Street (Figure A, Sheet 7 of 12) to avoid effects to residences, a school, and a utility tower, and then widen back to 10.8 meters for the remainder of the project corridor.

1.3.1.4 Auxiliary Lanes

Auxiliary lanes would connect on-ramps to off-ramps between interchanges along the SR 4 East project corridor, conforming at the west to the auxiliary lanes constructed under the Route 4 / Railroad Avenue Interchange Project. On-ramps would be designed to accommodate future ramp metering, HOV preferential lanes, and CHP enforcement areas.

1.3.1.5 Reconstruction of Structures and Crossing Roadways

SR 4 widening would require reconstruction of undercrossings, overcrossings, and interchanges within the project limits. At the SR 4 / Loveridge Road Interchange (Figure A, Sheet 2 of 12), the overcrossing would be reconstructed, the Stoneman Spur railroad underpass removed, and the interchange ramps reconstructed. To accommodate the planned widening of Century Boulevard (by others), the existing single-span structures carrying SR 4 over Century Boulevard would be replaced by two-span structures (Figure A, Sheet 3 of 12), while Century Boulevard would be lowered by 0.6 meter (2.0 feet). Also, the Lone Tree Way–A Street undercrossing structures would be widened (Figure A, Sheet 8 of 12), and the Somersville Road (Figure A, Sheet 5 of 12) and Contra Loma Boulevard–L Street undercrossing structures (Figure A, Sheet 7 of 12) and southbound Hillcrest Avenue overcrossing (Figure A, Sheet 10 of 12) would be reconstructed. The ramps to and from the east at the SR 4 / G Street Interchange would be eliminated, and replacement access would be provided at the SR 4 / Contra Loma–L Street Interchange (Figure A, Sheet 7 of 12).

SR 4 widening would also require lowering of Cavallo Road (Figure A, Sheet 9 of 12). The profile would be lowered by approximately 0.7 meters (a little over two feet) to meet vertical clearance

requirements and would conform at the intersection with East Tregallas Road to the south and with Sunset Drive to the north. The roadway would consist of a 3.6-meter (12-foot) wide traveled lane, 2.4-meter (8-foot) wide outside shoulder, and 1.5-meter (5-foot) wide sidewalk in each direction.

The SR 4 East Widening Project would construct retaining walls throughout much of the corridor to minimize new right-of-way requirements. The Roosevelt Lane pedestrian undercrossing and the Cavallo Road undercrossing would be widened (Figure A, Sheet 9 of 12), and existing box culverts at West Kirker Creek (Figure A, Sheet 1 of 12), East Kirker Creek (Figure A, Sheet 2 of 12), and the Los Medanos Wasteway (Figure A, Sheet 4 of 12) would be extended. The utilities undercrossing just west of Century Boulevard (Figure A, Sheet 3 of 12) would be widened, and the existing pump station draining the depressed mainline at the Loveridge Road overcrossing would be relocated (Figure A, Sheet 4 of 12).

1.3.1.6 Ramp Metering

The SR 4 East Widening Project would provide for some elements of Intelligent Transportation System/Traffic Operations System (ITS/TOS) infrastructure, including future ramp metering and HOV bypass lanes at interchange on-ramps. Ramp metering is an effective traffic management strategy that is typically implemented on a corridor basis, rather than at individual locations, and is based on corridor traffic operations analysis. This project will install the fundamental infrastructure required for ramp metering at state facilities throughout the SR 4 corridor. The decision to implement ramp metering in the SR 4 corridor will be discussed thoroughly among stakeholders before implementation.

1.3.1.7 Interchange Improvements

A detailed discussion of improvements at individual interchanges follows in the next six subsections.

SR 4 / Loveridge Road Interchange

The Loveridge Road Interchange (Figure A, Sheet 2 of 12) would be reconstructed to accommodate SR 4 widening and provide for possible future transit facilities in the median consistent with the *SR 4 East Corridor Transit Study* (CCTA and BART, 2002) as described in Section 1.3.1, Build Alternative. Any such possible future transit improvements would be made by others. The new overcrossing spans supporting Loveridge Road would be widened to accommodate two 3.6-meter (12-foot) left-turn lanes, two 3.6-meter through travel lanes, 2.4-meter (8-foot) shoulders sufficient for bicycles, and a 1.8-meter (6-foot) sidewalk in each direction of travel. The existing Stoneman railroad spur underpass would be removed and the track terminated on the north side of SR 4.

The eastbound diagonal on- and off-ramps would be reconstructed and the eastbound loop on-ramp eliminated. The reconstructed eastbound off-ramp would be a two-lane exit, including approximately 870 meters (about 0.5 mile) of auxiliary lane. The reconstructed eastbound on-ramp would be wide enough for two mixed-flow ramp-metered lanes, an HOV preferential treatment lane, and a CHP enforcement area.

The westbound on- and off-ramps would be reconstructed, retaining the existing buttonhook configuration, and would remain at their current location on California Avenue, approximately 220 meters (about 720 feet) west of Loveridge Road. The on-ramp would accommodate two mixed-flow ramp-metered lanes and a CHP enforcement area, and the off-ramp would be widened to three lanes. California Avenue would be shifted north to accommodate the new ramp configurations, and the intersections would be improved to serve the projected future traffic volumes. North Park Boulevard would be shifted north to accommodate the freeway widening, but would intersect Loveridge Road at the same location as the current intersection, opposite California Avenue.

The replacement Loveridge Road structures would be shifted approximately 30 meters (about 100 feet) to the west to facilitate construction staging and would be widened to accommodate dual left-turn lanes in each direction. The general Loveridge Road alignment, which crosses SR 4 at about a 40-degree skew, would be maintained due to right-of-way constraints in all four quadrants. The new Loveridge Road profile would be raised approximately 3 meters (about 10 feet) above the existing grade to accommodate both a deeper overcrossing structure and falsework during construction over traffic on SR 4.

SR 4 / Somersville Road Interchange

The existing structures at the Somersville Road Interchange (Figure A, Sheet 5 of 12) would be replaced to allow sufficient room for SR 4 to be widened through the interchange. Given the large capital investment and long life expectancy of the replacement structures, they would be designed to accommodate the planned widening of Somersville Road (future project by others), which proposes to provide three through lanes and dual left-turn lanes in each direction on Somersville Road by widening Somersville Road to the east between the eastbound and westbound SR 4 ramps. The Somersville Road improvements would conform to the existing roadway at Mahogany Way to the north and Delta Fair Boulevard to the south.

The SR 4 mainline profile would be raised approximately 2 meters (6.6 feet) over Somersville Road for a deeper structure and falsework clearance over Somersville Road during construction. The interchange ramps would be reconstructed in a partial cloverleaf configuration with loop off-ramps and diagonal on-ramps in both eastbound and westbound directions. The eastbound and westbound off-ramps would begin with two lanes and would widen to three lanes at the intersection with Loveridge Road. The eastbound on-ramp would allow the dual left-turning movement and a free right-turn from Somersville Road. Both eastbound and westbound on-ramps would consist of three lanes at the terminus that could accommodate two mixed-flow ramp-metered lanes, an HOV preferential lane, and a CHP enforcement area. Auxiliary lanes would be constructed between interchanges to facilitate freeway on and off movements.

SR 4 / Contra Loma Boulevard–L Street Interchange

The existing Contra Loma Boulevard–L Street Interchange is a partial interchange including only an eastbound off-ramp and westbound on-ramp. The reconstructed interchange (Figure A, Sheet 7 of 12) would provide for all on and off movements in a tight-diamond configuration. The SR 4 structure would provide standard vertical clearance and would accommodate the planned widening of Contra

Loma Boulevard–L Street (by others). The SR 4 mainline profile at this interchange would be raised approximately 2 meters (6.6 feet) to accommodate a deeper structure and provide falsework clearance during construction. Contra Loma Boulevard–L Street would be realigned for future widening (by others) to two through-lanes and two left-turn lanes in each direction under the SR 4 / Contra Loma Boulevard–L Street undercrossing structures. Contra Loma Boulevard–L Street would conform to existing geometry at Lemon Tree Way to the north and Fitzuren Road to the south. The Claudia Court / L Street Intersection would be relocated approximately 45 meters (148 feet) to the north to accommodate the new westbound off-ramp. The westbound and eastbound on-ramps would accommodate two mixed-flow ramp-metered lanes, an HOV preferential lane, and a CHP enforcement area.

G Street Overcrossing

The existing G Street partial interchange with ramp access to and from the east would be removed and the G Street overcrossing reconstructed (Figure A, Sheet 7 of 12). Freeway access removed at G Street would be replaced at the Contra Loma Boulevard–L Street Interchange. Currently, the SR 4 horizontal alignment in the vicinity of G Street follows a 915-meter (3,000-foot) radius curve through the narrow, closed-face abutments of the existing overcrossing. This segment would be realigned northward and reconstructed with a flatter 1,200-meter (3,900-foot) radius curve. To meet vertical clearance requirements, the mainline SR 4 profile would be lowered by 0.6 meter (2 feet), and the profile of G Street would be raised approximately 2 meters (6.6 feet) to accommodate a deeper structure and provide falsework clearance over SR 4 during construction.

The new overcrossing would provide a 3.6-meter (12-foot) travel lane, 2.4-meter (8-foot) shoulder, and 1.5-meter (5-foot) sidewalk in each direction. The G Street alignment would be shifted approximately 8 meters (about 26 feet) to the west to facilitate construction staging and maintain traffic during construction. Local street intersections with Fitzuren Road, Minta Avenue, and West Tregallas Road to the south and Drake Street to the north would be modified to conform to the realigned G Street.

SR 4 / Lone Tree Way–A Street Interchange

The Lone Tree Way–A Street Interchange (Figure A, Sheet 8 of 12) would be reconfigured and the SR 4 undercrossing structures over Lone Tree Way–A Street widened to accommodate the SR 4 highway widening. Lone Tree Way–A Street would be widened to provide an additional southbound left-turn lane and a northbound right-turn lane to improve operations during the peak hours. The additional space for widening would be achieved by replacing the sloped, open-ended undercrossing abutments with vertical closed-end abutments. A loop on-ramp would be added in the westbound direction; otherwise, ramps would be reconstructed in the current diamond configuration. The eastbound and westbound on-ramps would both be built with three lanes, which would allow for two mixed-flow ramp-metered lanes, an HOV preferential lane, and a CHP enforcement area. The existing undercrossing structures would be widened to accommodate the mainline widening and westbound loop on-ramp. The westbound off-ramp would be realigned and would terminate at A Street opposite Texas Street. Highway widening and ramp realignments on the northern side

would require local street cul-de-sacs at Drake Street, Sunset Drive, and Bryan Way. Access to Texas Street from A Street would be restricted to right-in, right-out movements.

SR 4 / Hillcrest Avenue Interchange

The southbound Hillcrest Avenue overcrossing structure (Figure A, Sheet 10 of 12) would be replaced approximately 11 meters (about 36 feet) to the west to facilitate construction staging and would be widened to accommodate two through-lanes, two left-turn lanes, a 2.4-meter (8-foot) outside shoulder and a 1.5-meter (5-foot) sidewalk. The existing northbound Hillcrest Avenue overcrossing structure would be maintained but re-striped to provide one through-lane, one shared through- and right-turn lane, and one right-turn lane onto Sunset Drive to the proposed hook on-ramp.

In the northeast quadrant, the westbound loop on-ramp would merge with a tangent leg that would terminate at Sunset Drive approximately 180 meters (590 feet) to the east of the Hillcrest Avenue / Sunset Drive intersection. The westbound hook off-ramp would terminate at Sunset Drive adjacent to the tangent leg of the westbound on-ramp.

The westbound loop on-ramp from Hillcrest Avenue and Sunset Drive would accommodate two mixed-flow ramp-metered lanes and an HOV preferential treatment lane. The three lanes would merge into one and would become the westbound auxiliary lane. The existing westbound SR 4 on-ramp consists of two lanes at the Hillcrest Avenue intersection that merge together before merging onto the freeway. This ramp would be modified to allow for one mixed-flow lane and one HOV preferential lane, and would merge into the westbound auxiliary lane. The westbound hook off-ramp would become three lanes wide at Sunset Drive. Space for CHP enforcement areas would be provided at the on-ramps.

The existing single-lane eastbound off-ramp would be widened to two lanes at the exit nose and to four lanes at the terminus. The eastbound on-ramp would be modified to accommodate the dual left turning movement and to accommodate two mixed-flow ramp-metered lanes, an HOV preferential lane, and a CHP enforcement area.

1.3.1.8 Construction of Build Alternative

In order to minimize disruption to the traveling public and so that no more than one interchange would be under construction at a time, it is anticipated that the SR 4 East project would be constructed in stages, interchange to interchange, moving from west to east as described in detail in Section 2.4.1, Construction Stages, Schedule, and Work Hours. Right-of-way acquisition is expected to occur during 2005-2007, and construction is scheduled to begin in 2007 and continue in stages over the next nine to ten years.

1.3.2 No-Build Alternative

The No-Build Alternative would not satisfy the project purpose and need objectives but is being studied in accordance with NEPA and CEQA requirements. It offers a basis for comparison with the Build Alternative in the future analysis year of 2030. The No-Build Alternative assumes no major

construction on SR 4 through the project limits other than planned and programmed improvements and continued routine maintenance.

Planned and programmed improvements included in the No-Build Alternative consist of the following components as contained in the 2001 Regional Transportation Plan (RTP):

- Construct I-680 / SR 4 interchange freeway-to-freeway direct connectors (Phases 1 and 2): eastbound SR 4 to southbound I-680, and northbound I- 680 to westbound SR 4;
- Widen SR 4 to six mixed-flow lanes and add two HOV lanes through the Railroad Avenue Interchange, stopping west of Loveridge Road (currently under construction);
- Add an eastbound auxiliary lane to SR 4 in advance of the eastbound off-ramp to Hillcrest Avenue and widen the off-ramp from one lane to two lanes;
- Construct the following SR 4 Bypass facilities:
  - Construct a four-lane facility from SR 4 to Balfour Road and a two-lane facility from Balfour Road to Walnut Boulevard,
  - Upgrade Marsh Creek Road,
  - Construct a freeway-to-freeway interchange 1.6 kilometers (one mile) east of Hillcrest Avenue on SR 4, and
  - Construct interchanges at Laurel Road and Lone Tree Way.

Also included in the No-Build Alternative are a number of locally-sponsored projects for improving the local arterial network, including widening of portions of the Pittsburg-Antioch Highway and Somersville Road.

No short-term construction costs would be associated with the No-Build Alternative.

1.3.3 Costs and Funding

The No-Build Alternative would not require any immediate investment of capital other than ongoing operations and maintenance costs and the costs of the other programmed transportation improvements as previously described. The Build Alternative would require funds for construction and right-of-way acquisition. Total costs are estimated at $307 million, with construction costs of $232 million and right-of-way acquisition costs of $75 million. Funding would come from a variety of federal, state, and local sources. Local funding sources would include Contra Costa County's sales tax measure, Measure C, as well as development impact fees and other local sources. Federal and state funding sources are described in the RTP and Regional Transportation Improvement Program (RTIP). The SR 4 East Widening Project is included in the financially constrained portion of the Draft 2005 RTP and will be updated in the 2005 RTIP, which draws its projects from the RTP.

1.3.4 Alternatives Considered and Withdrawn

Four mainline concept alternatives and multiple interchange concept alternatives for the various interchanges were considered and subsequently withdrawn from further consideration during the course of the engineering studies. These alternatives and the reasons they were withdrawn from further consideration are summarized in the following subsections.

1.3.4.1 SR 4 Mainline Widening Alternatives

Six-Lane Facility

This alternative would have added one mixed-flow lane in each direction within the existing median of SR 4 from the SR 4 / Loveridge Road Interchange east to the Hillcrest Avenue Interchange. The highway would have been realigned slightly to the north, adjacent to the existing SR 4 / G Street Interchange, removing the existing west side G Street ramps and constructing new east side ramps at the SR 4 / Contra Loma–L Street Interchange. Auxiliary lanes would have been constructed between the Lone Tree and Contra Loma–L Street interchanges. The HOV lane corridor would have extended approximately 2 kilometers (1.2 miles) west to the reconstructed Loveridge Road Overcrossing, for a total distance of 15 kilometers (9.3 miles) to the SR 4 / 242 Interchange. Local road improvements within the interchange limits would have been proposed at Somersville Road and Lone Tree Way to alleviate intersection congestion.

In recent years, the area surrounding the project corridor has undergone rapid commercial and residential development. Traffic analysis demonstrated that the Six-Lane Facility Alternative would not be adequate to meet the project purpose and need objectives of relieving traffic congestion and improving traffic operations and safety. This alternative also would have done nothing to encourage use of alternative modes or carpooling. Therefore, the Six-Lane Facility Alternative was withdrawn from further consideration.

Seven-Lane Facility (Reversible HOV)

This alternative would have constructed the same improvements described in the Six-Lane Facility Alternative, with the addition of a full-depth traveled way pavement section in the median between the SR 4 / Loveridge Road Interchange improvements east to the G Street Overcrossing, a distance of 3.8 kilometers (2.4 miles). A moveable median barrier would have been installed that would have allowed the median to be used as a reversible HOV lane in the peak direction between Loveridge and G Street, extending the HOV facility from the SR 4 / 242 Interchange east to the SR 4 / Contra Loma–L Street Interchange, a distance of 19.5 kilometers (about 12 miles).

Traffic analysis performed for the project demonstrated that, like the Six-Lane Facility Alternative, the Seven-Lane Facility Alternative would not be adequate to meet the project purpose and need objectives of relieving traffic congestion and improving traffic operations and safety. The acceptability of a moveable median barrier and reversible lane was also an issue. Therefore, the Seven-Lane Facility Alternative was withdrawn from further consideration.

Eight-Lane Facility with Wide Median

This alternative would have included the same improvements as the proposed eight-lane Build Alternative except that the wide median described for the Loveridge interchange area would have extended the entire length of the project corridor. This alternative had two variations: a symmetrical widening concept (widening on both sides of the highway centerline)—with limits as described in the following subsection—and an unsymmetrical concept that would have widened primarily to the north

side of SR 4. The wide median alternatives were developed to accommodate a dedicated transit way within the median of SR 4 to the Hillcrest Avenue Interchange.

In December 2002, CCTA and BART issued the *SR 4 East Corridor Transit Study*, which identifies the preferred future transit alignment as departing SR 4 on an aerial structure over the Loveridge Road Interchange and proceeding northeast along an existing UPRR team track to the UPRR Mococo line right-of-way. With this future transit alignment established, the wide SR 4 median was no longer needed. Narrowing the median and project corridor east of Loveridge Road is consistent with the transit study and also reduces right-of-way requirements and impacts without reducing traffic service. Therefore, the Eight-Lane Facility with Wide Median Alternative with either symmetrical or unsymmetrical widening was withdrawn from further consideration.

Widening Alternative for Eight-Lane Facility with Narrow Median

An alternative alignment for the mainline widening was also considered for the eight-lane facility. This alternative would have widened SR 4 symmetrically about the existing roadway from east of Loveridge Road to Century Boulevard and for the subsequent transition to the existing four-lane section at Somersville Road, but had a narrow median. Although this alternative would have precluded a dedicated transit way within the median of SR 4 to the Hillcrest Avenue Interchange, this transit alignment was eliminated as a result of the *SR 4 East Corridor Transit Study*. This narrow median alternative was withdrawn from further consideration nonetheless due to impacts to the apartment complexes and other properties on the south side of SR 4.

1.3.4.2 SR 4 / Loveridge Road Interchange Alternatives

Two alternatives were considered to maintain the UPRR Stoneman Spur railroad spur track in its current alignment, crossing southwest to northeast under SR 4 at the Loveridge Road Interchange. A third alternative would have eliminated the railroad spur and re-configured the interchange in a tight diamond pattern to reduce right-of-way impacts. These three alternatives are described below.

Railroad Spur on Separate Structure – Buttonhook Ramps Interchange Alternative

This alternative would have reconstructed the railroad spur east of the replacement Loveridge structures, with reconstructed grade crossings on North Park Boulevard and Loveridge Road. The interchange configuration would have been similar to that of the proposed Build Alternative, with the exception that the westbound off-ramp would have retained the existing buttonhook configuration. North Park Boulevard would have been shifted north to accommodate the new freeway alignment, but would not have intersected with Loveridge Road in its current location. The Loveridge Road bridges would have been shifted to the west approximately 15 meters (about 49 feet) to facilitate construction staging, and the Stoneman Spur Underpass would have been reconstructed east of the northbound bridge to minimize traffic disruption when the spur track was being used. This alternative was eliminated because *the City of Pittsburg supports the removal of the spur. It is anticipated that the replacement of the freight transport function of the spur will be undertaken as a separate project (by others), eliminating the need to replace the Stoneman Spur at the Loveridge Interchange.*

Railroad Spur on Roadway Structure Interchange Alternative

This alternative would have maintained the existing railroad spur, but with the replacement track constructed within the traffic lanes of the new northbound Loveridge bridge structure. With this exception, the interchange configuration would have been similar to that under "Railroad Spur on Separate Structure – Buttonhook Ramps Interchange Alternative" described previously. This alternative was eliminated because the transport function of the Stoneman Spur would be relocated under a separate project (as described in the previous section), which eliminates the need to reconstruct the railroad spur at this interchange.

Tight Diamond Interchange Alternative

This alternative would have eliminated the railroad underpass, removed the existing westbound buttonhook ramps, and replaced the ramps with a tight diamond configuration directly adjacent to the westbound mainline. The intersection of Loveridge Road with North Park Boulevard and California Avenue would have been relocated approximately 50 meters (about 164 feet) north of the existing intersection to accommodate the ramp termini.

Due to right-of-way constraints, the intersections of Loveridge Road with the ramp termini and North Park Boulevard / California Avenue would have been separated by only 80 meters (about 262 feet) under this configuration. Such close intersection spacing is less than the required standard spacing of 125 meters (about 410 feet) and would have resulted in poor traffic operating conditions on Loveridge Road, with LOS E/F exhibited during the peak hours. Also, although the right-of-way requirements for this interchange alternative would have been less than for the other alternatives, this interchange configuration would have affected a fast food restaurant and would have had a higher project cost than the interchange configuration in the Build Alternative due to the need for more retaining walls. For these various reasons, the tight diamond configuration was withdrawn in favor the Loveridge interchange configuration as described in the Build Alternative.

1.3.4.3 SR 4 / Somersville Road Interchange Alternatives

This subsection and subsections 1.3.4.4 through 1.3.4.6 describe the concept alternatives considered for the interchanges from Somersville Road through Hillcrest Avenue. As part of the evaluation, each interchange improvement alternative was analyzed under 2030 traffic conditions. Physical constraints, geometric feasibility, and impacts were also considered in screening these concepts.

Alternative S-3, Three Lane Eastbound Slip On-Ramp

Alternative S-3 would have replaced the Somersville Interchange in the existing configuration. The westbound off-ramp and eastbound on-ramp would both have been widened to two lanes, and dual left-turn lanes would have been provided at each ramp terminal intersection. Dual left-turn lanes would also have been provided at each ramp terminal intersection. This alternative would not have operated as well as the Somersville interchange configuration included in the Build Alternative and would have had more right-of-way impacts in the southwest quadrant; also, it was projected to have the highest system delay in the morning peak hour of any of the concepts evaluated. It was therefore withdrawn from further consideration.

Alternative S-4, Tight Diamond

Alternative S-4 would have replaced the Somersville Interchange with a tight-diamond configuration by eliminating the eastbound loop off-ramp and westbound loop off-ramp and replacing them with diagonal ramps. The westbound off-ramp and eastbound on-ramp would both have been widened to two lanes, and dual left-turn lanes would have been provided at each ramp terminal intersection. While this design concept would have operated marginally better at the ramp ends than the Somersville interchange configuration included in the Build Alternative, it would have had greater right-of-way impacts. It was therefore withdrawn from further consideration.

Hybrid Alternative

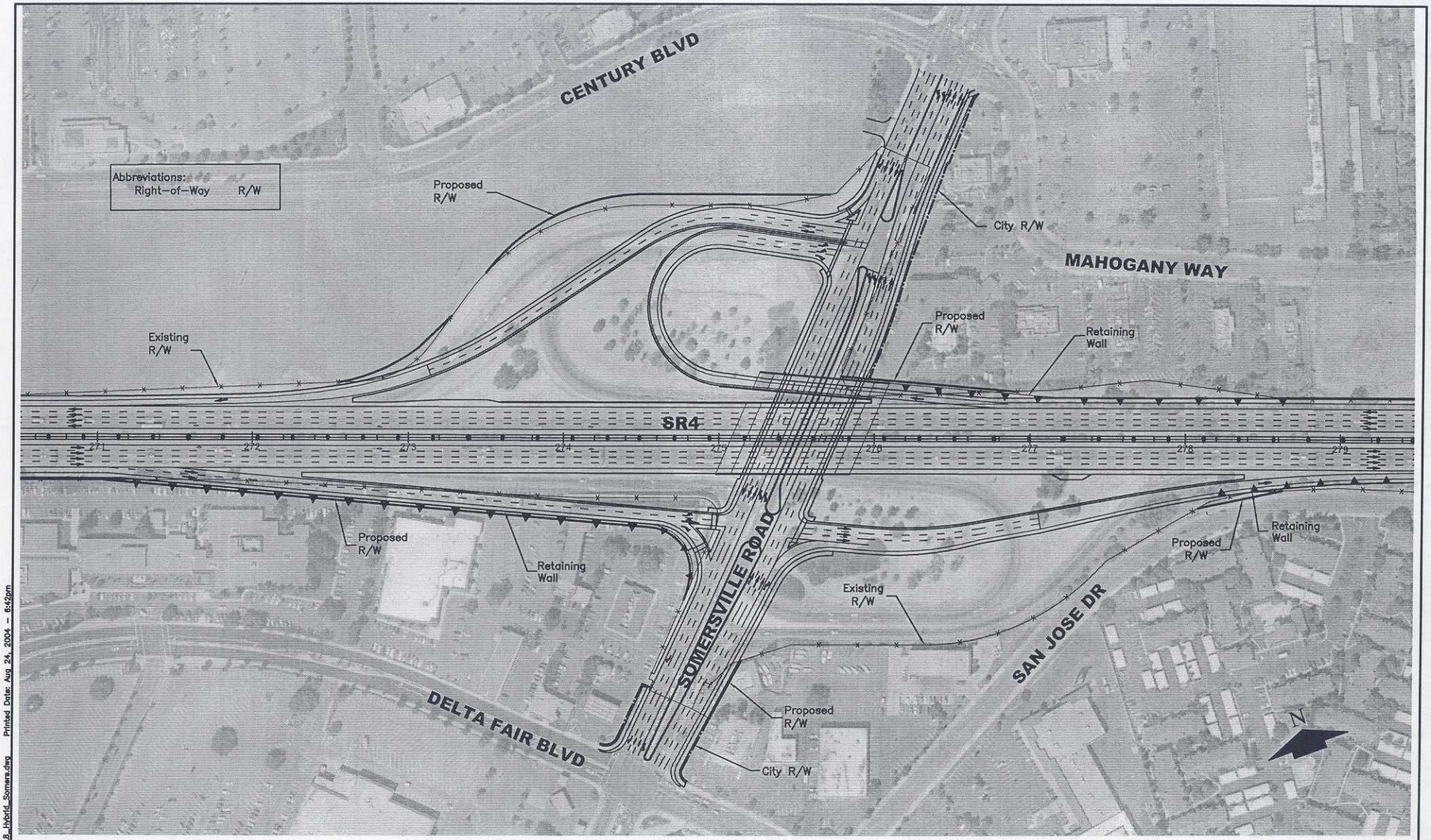
A hybrid concept consisting of the proposed configuration along the north side of SR4 with a diamond on the south side was also evaluated and is shown in Figure 1.3-1 along with its right-of-way requirements. This alternative would have had greater right-of-way and utility impacts on the south side of SR4 and would have required the acquisition of the Best Western Motel; affected parking at the Delta Bowl, Kaiser Permanente Medical facilities, and Denny's Restaurant; and required relocation of the 4.6-meter (15-ft) wide utility easement containing sanitary sewer and overhead electrical utilities in the southwest quadrant of the interchange; *none of these facilities would be affected under the proposed alternative*. The Hybrid Alternative would also have required acquisition of the Sporting Edge Ski and Marine and affected parking at the Lyon's Restaurant in the southeast quadrant of the interchange.

Traffic operations for this interchange concept were analyzed for the design year 2030 and compared against the No-Build, the proposed interchange alternative, and the other interchange concepts withdrawn from further study. Although this concept would have operated at an acceptable level, it would not have operated as well as the proposed partial cloverleaf interchange and was projected to have the highest system delay in the evening peak hour of any of the concepts evaluated. The analysis findings are summarized in Table 1.3-1.

Because the right-of-way impacts would be greater and traffic operations were not better than the proposed partial cloverleaf interchange, the Hybrid Interchange concept was withdrawn from further consideration.

Single-Point Diamond Interchange

A single-point diamond interchange was also evaluated. Intersection delays were higher with this concept than were projected for the configuration included in the Build Alternative, and there would have been greater right-of-way impacts associated with the increased footprint of longer and wider ramps. Construction costs would have also been higher. This concept was therefore withdrawn from further consideration.



Source: Parsons 2004

NOT TO SCALE

Figure 1.3-1

STATE ROUTE 4 (EAST) WIDENING PROJECT : LOVERIDGE ROAD TO STATE ROUTE 160

04-CC-4-KP 37.9/R46.3 (PM 23.5/R28.8)

SR4 / Somersville Road Interchange - Hybrid Alternative

Caltrans

File Name: R:\644483\Drawings\Civil\DPR\L8_Hybrid_Somers.dwg Printed Date: Aug 24, 2004 - 8:42pm

Table 1.3-1: Year 2030 Intersection Analysis Results – Somersville Road Interchange

Interchange Alternative	AM (PM) Peak Hour[1]			
	Somersville Road / Delta Fair Blvd.	**Somersville Road / SR4 EB Ramps**	**Somersville Road / SR4 WB Ramps**	**Somersville Road / Century Blvd / Mahogany Way**
No-Build	>80 / F (>80 / F)	11.8 / B (14.4 / B)	42.2 / D (23.4 / C)	74.9 / E (59.7 / E)
Proposed Partial Cloverleaf	54.7 / D (45.5 / D)	12.4 / B (16.2 / B)	14.9 / B (21.7 / C)	32.5 / D (39.8 / D)
S-3: Existing Configuration	57.4 / E (47.0 / D)	15.1 / C (15.5 / C)[2]	17.6 / B (19.1 / B)	35.9 / D (41.2 / D)
S-4: Tight Diamond	50.4 / D (43.1 / D)	15.1 / B (15.5 / B)	20.4 / C (22.5 / C)	37.6 / D (41.0 D)
Single-Point Diamond	58.5 / E (45.3 / D)	27.8 / C (31.0 / C)		37.1 / D (43.9 / D)
Hybrid	57.8 / E (45.8 / D)	17.7 / B (18.9 / B)	16.4 / B (21.9 / C)	35.8 / D (42.2 / D)

Notes:
1. 2.2 / A = Average total delay in seconds per vehicle / level of service
2. Represents the delay and level of service for the eastbound side-street stopped movement.
Source: Fehr & Peers, November 2003.

1.3.4.4 SR 4 / Contra Loma Boulevard–L Street Interchange Alternatives

Three alternative design concepts were considered for the SR 4 / Contra Loma Boulevard – L Street Interchange, as described in this subsection. As was done with the concepts for other interchange locations, they were evaluated based on year 2030 traffic conditions, physical constraints, geometric feasibility, and impacts.

Alternative L-2

Alternative L-2 would have created a tight-diamond configuration for the eastbound ramps. The westbound ramps would have consisted of a loop on-ramp to serve the northbound-to-westbound traffic, a diagonal on-ramp to serve southbound-to-westbound traffic, and a two-lane diagonal off-ramp. This alternative would have had impacts on low-income housing from its loop in the northeast quadrant. It was withdrawn from further consideration in favor of the interchange configuration as shown under the Build Alternative.

Alternative L-3

Alternative L-3 would also have created a tight-diamond configuration for the eastbound ramps. The westbound ramps would have consisted of a single-lane diagonal off-ramp to serve northbound traffic, a single-lane loop off-ramp to serve southbound traffic and a two-lane westbound diagonal on-ramp. This alternative would have had substantial wetlands impacts due to the loop in the northwest quadrant. It was therefore withdrawn from further consideration in favor of the interchange configuration described under the Build Alternative, which would have fewer impacts to wetlands. Avoiding and reducing impacts on wetlands through alternatives analysis is consistent with Clean Water Act Section 404(b)(1) guidelines.

Alternative L-4

Alternative L-4 would have created a single-point diamond interchange configuration with all ramps converging at a single signalized intersection on the freeway overcrossing. It would not have had acceptable traffic operations and would have had severe right-of-way impacts. It would also have been substantially more costly than any of the other interchange configurations with no commensurate benefit to operations or environmental values. For these reasons, the single-point diamond interchange was withdrawn from further consideration.

1.3.4.5 SR 4 / A Street Interchange Alternative

A *lower cost*, diamond interchange configuration was considered at A Street, but it did not perform adequately in the operations analysis; therefore it was withdrawn from further consideration.

1.3.4.6 SR 4 / Hillcrest Avenue Interchange Alternatives

This subsection describes the four alternative design concepts that were considered for the SR 4 / Hillcrest Avenue Interchange and evaluated based on year 2030 traffic conditions, physical constraints, geometric feasibility, and impacts.

Alternative H-1

Alternative H-1 consisted of a diamond configuration, but it did not perform adequately in the operations analysis and was therefore withdrawn from further consideration.

Alternative H-2

Alternative H-2 would have created a three-lane loop on-ramp for vehicles traveling from northbound Hillcrest Avenue to westbound SR 4 to provide for future ramp metering and HOV preferential treatment. The eastbound ramps would have retained the tight-diamond configuration with the off-ramp being widened to two lanes. This configuration did not perform as well in the operations analysis as the other alternatives at this location and it was therefore withdrawn from further consideration.

Alternative H-3

Alternative H-3 was the same as Alternative H-2, except that the westbound off-ramp would have accessed Sunset Drive at a new intersection approximately 200 meters (about 660 feet) east of Hillcrest Avenue. Also, the eastbound ramp junction would have been located as far north as possible to maximize the distance between it and the Tregallas Road intersection. This alternative would have had an isolated westbound off-ramp that raised safety concerns about possible wrong-way movements onto the freeway; it was therefore withdrawn from further consideration.

Single-Point Diamond Interchange

A single-point diamond interchange was evaluated that would have improved operations on the SR 4 ramps, although LOS E would still have resulted during the evening peak hour. The nominal improvement in operations was not enough to offset this interchange configuration's cost, which was estimated at more than twice the estimated construction cost of the interchange configuration included in the Build Alternative; it was therefore withdrawn from further consideration.

1.3.4.7 Value Analysis Alternatives

A Value Analysis (VA) study was conducted for the SR 4 (East) Widening Project in February 2001, following approval of the Project Study Report (PSR). Four VA Alternatives were developed for the Loveridge Interchange, including three concepts to reduce the skew of the overcrossing, and one to remove the railroad spur and relocate the affected businesses. Seven VA alternatives were developed for the mainline, including two concepts that would not accommodate future transit in the median, one that would provide six lanes to Hillcrest Avenue without future transit in the median, and one with eight lanes to Hillcrest Avenue with reduced-width median shoulders. Other concepts proposed a dual eastbound off-ramp to Lone Tree Way, a revised estimate for moveable barriers (which are no longer included in the project description), and reduced-median shoulder widths to widen a less than standard-width lane to standard width. (All lanes in the current project description are standard width.) The Project Development Team accepted none of the VA Alternatives. Further VA Analysis is possible during the design phase of this project.

1.3.5 Permits and Approvals Needed

Table 1.3-2 lists the various agency permits and approvals that are anticipated for the SR 4 (East) Widening Project.

Table 1.3-2: Anticipated Permits and Approvals Required

Agency	Approval or Permit
U.S. Army Corps of Engineers	The following nationwide permits for impacts to jurisdictional wetlands or other waters of the U.S. under Section 404 of the Clean Water Act : • Nationwide permit 14 for linear transportation crossings and possibly, • Nationwide permit 43 for construction or maintenance of stormwater management facilities, and • Nationwide permit 33 for temporary construction, access, and dewatering.
California Department of Fish and Game	Section 1602 Streambed Alteration Agreement for modifications to West and East Kirker Creek and West Antioch Creek and/or encroachment into riparian areas.
Regional Water Quality Control Board	Water Quality Certification pursuant to Section 401 of the Clean Water Act; National Pollutant Discharge Elimination System or Countywide Non-point Source Permit for discharge of storm water into surface waterways under the Clean Water Act; includes contractor's preparation of a Storm Water Pollution Prevention Plan (SWPPP).
California Department of Toxic Substances Control (California Environmental Protection Agency)	Approval of voluntary clean-up agreement, transportation plan, soil management plan, and health and safety plan for construction operations.
California Public Utilities Commission	Approval of Pacific Gas & Electric Company Notice of Construction for relocation of power lines pursuant to GO 131-D. Approval of at-grade crossings. Request for approval of alteration of existing public railroad-highway crossings under General Order 88A.
U.S. Bureau of Reclamation	Permit to cross the Los Medanos Wasteway.
City of Pittsburg	Review of storm drain facilities to ensure adequacy to accommodate 10- and 25-year flood flows and that downstream City flood control facilities at Kirker Creek are not exceeded in 100-year flows. Review and approval of project plans and specification for work within City right-of-way.
California Department of Transportation (Caltrans)	Encroachment permits from Caltrans to perform design surveys and for the administration of the construction contract if an agency other than Caltrans provides these services.

1.4 Related Projects

The following paragraphs identify and briefly describe related projects for their coordination or cumulative impact issues with respect to the proposed project.

1.4.1 Other SR 4 East Improvements

The planning and development of improvements within the SR 4 East Corridor has been ongoing for over 15 years. CCTA has been implementing the roadway widening program in stages, and several projects have already been completed to alleviate SR 4 congestion in the East County.

The SR 4/Willow Pass Grade Lowering Project, the SR 4/Bailey Road Interchange Project, and the Bailey Road to Railroad Avenue Project are complete. These projects have widened SR 4 to six mixed-flow lanes and provided an HOV lane in each direction. They also provided a median width to accommodate BART, which has brought the Pittsburg-Antioch Extension to the Bailey Road Interchange. HOV lanes now extend from just east of the SR 4 / SR 242 Interchange to just west of Railroad Avenue. The Railroad Avenue Interchange Project, currently under construction, will extend the six mixed-flow lanes and two HOV lanes to the western limits of the present project.

To alleviate operational deficiencies experienced through the I-680 / SR 4 interchange, a phased sequence of improvements is proposed. Phase 1 would construct a new connection from northbound I-680 to westbound SR 4. Phase 2 would provide a new eastbound SR 4 to southbound I-680 connection, and widening of SR 4 would occur in Phase 3. During Phase 4, a new southbound I-680 to eastbound SR 4 connection would be constructed, and Phase 5 would provide a new westbound SR 4 to northbound I-680 connection. Phases 1 and 2 would be complete and operational by 2010, with 2008 as the mid-year of construction. The mid-year of construction for Phases 3, 4, and 5 would be 2015, with completion and operation anticipated by 2025.

1.4.2 SR 4 Bypass Project

The State Route 4 Bypass project (Bypass) is being developed in a cooperative effort among Contra Costa County and the cities of Antioch, Brentwood, and Oakley. The purpose of the Bypass is to ease traffic congestion in Brentwood and Oakley and provide access to the growing areas of southeast Antioch and western Brentwood. The Bypass will construct a new four-lane nine-mile freeway from the SR 4/SR 160 Interchange southward that will bypass Oakley and Brentwood and then connect to the existing SR 4 in eastern Contra Costa County. It is expected that Caltrans will relinquish the existing highway and adopt the Bypass as the new SR 4.

The current environmentally approved project consists of a new four-lane divided highway between the SR 4/SR 160 junction and Balfour Road, and a two-lane roadway from Balfour Road south to Vasco Road at Walnut Boulevard. The SR 4 Bypass Project will be constructed in two phases – the interim phase and the ultimate phase. The interim phase will construct interchanges at the SR 4/SR 160 junction and Lone Tree Way with four lanes of roadway to Lone Tree Way, then a two-lane limited-access expressway with at-grade, signalized intersections at major crossings. Marsh Creek Road will be widened to an improved two-lane road and will serve as the connection between the

Bypass and the existing SR 4 in the Brentwood area. The ultimate phase of construction will expand the two-lane expressway to a four-lane freeway with full interchanges.

The Bypass has three segments:

- Segment 1 will be a new interchange at SR 4, east of the Hillcrest Avenue interchange, and a four-lane divided roadway to Lone Tree Way. Construction is scheduled to begin in 2004 with completion in 2007.
- Segment 2 will be a four-lane highway from Lone Tree Way to Balfour Road. The interim phase – two lanes – was completed in 2002 and is open to traffic.
- Segment 3, the portion of the bypass south of Balfour Road, is under design. The interim phase will construct two lanes, which will become northbound lanes in the ultimate (four-lane) phase. Initially, these lanes will be used for two-way traffic until the southbound lanes are needed and added in the ultimate phase. Marsh Creek Road will be widened to provide two 3.6-meter (12-foot) wide travel lanes, 3-meter (10-foot) wide paved shoulders, and a compacted rocked shoulder for farm vehicles. Construction of the interim phase is scheduled to begin in 2005 with completion in 2006.

The ultimate (four-lane) phase of all segments of the Bypass will be developed and constructed as funding becomes available.

1.4.3 SR 4 Flood Relief Project (Kirker Creek)

This project, scheduled for completion in June 2004, will improve storm drainage along West Kirker Creek for approximately 1.6 kilometers (1 mile) from the Diane Avenue / California Avenue intersection to just northeast of the Loveridge Road / Pittsburg-Antioch Highway. The project will construct a 2.4-hectare (6-acre) detention basin along the east side of West Kirker Creek, north of Martin Luther King School.

1.4.4 Team Track Relocation

The "Stoneman Spur" railroad track, as described in Section 1.3.4.2, SR 4 / Loveridge Interchange Alternatives, originally served Camp Stoneman, which is situated south of SR 4 at the western end of the SR 4 East Widening project. The Stoneman Spur currently crosses over SR 4 northeast to southwest through the Loveridge Interchange to serve businesses on the south side of SR 4, one located within the former Camp Stoneman and the other just west of Loveridge. An associated railroad team track, which runs northeasterly between Loveridge Road and roughly Century Boulevard, also facilitates train movements and local freight deliveries in the Loveridge Interchange area.

The City of Pittsburg seeks to retire the existing grade crossings of Stoneman Spur at Loveridge Road. It also plans to create a new local roadway extending from Century Boulevard to where California Avenue ends in a cul-de-sac northeast of the Loveridge Interchange along the team track. To avoid creating a new grade crossing at the existing team track, and to replace rail freight deliveries that would be lost with the closure of the Stoneman Spur, the City *supports relocation of* the team track. A *potential* site has been identified within UPRR right-of-way west of Harbor Street and

outside the SR 4 project limits. It is anticipated that this project will be developed by UPRR over the next year.

1.4.5 Local Improvements

Somersville Road is undergoing improvements – a utility undergrounding project on the north side of SR 4 is underway and will be followed with a rubberized overlay. Completion is expected in 2004. Initial planning for interim widening of Somersville Road at SR 4 is also underway. This project would widen Somersville Road to six lanes under the SR 4 undercrossing, with minor improvements to the westbound off-ramp. Construction is expected to begin in June 2005.

Buchanan Road, a route of regional significance[3] from Railroad Avenue in Pittsburg to Somersville Road in Antioch, will be rehabilitated in the spring and summer of 2004. The project will include some road widening to accommodate the addition of bike lanes.

The Buchanan Road Bypass would involve the construction of a four-lane major arterial between James Donlon Boulevard in Antioch and Kirker Pass Road south of the Pittsburg city limits. A program-level Environmental Impact Report has been completed and the selection of a preferred alignment is underway.

1.4.6 Regional Express Bus: Brentwood to Pittsburg/Bay Point BART Station

Tri Delta Transit's Route 300 provides express bus service between Brentwood and the Pittsburg / Bay Point BART Station. This express service makes two stops in Brentwood, two in Oakley, one in Antioch at the Hillcrest Park & Ride lot, and one at the Pittsburg / Bay Point BART Station. This limited-stop route was expanded from peak hour to all day service in November 2003. The Route 300 express bus travels on existing HOV lanes on SR 4 west of the project limits and would use the HOV lanes provided under the proposed project to further reduce travel time.

1.4.7 East Contra Costa County Habitat Conservation Plan / Natural Communities Conservation Plan

The East Contra Costa County Habitat Conservation Plan Association (HCPA) is currently developing a Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP). The HCPA is a Joint Powers Authority consisting of the following agencies: Contra Costa County; the cities of Brentwood, Clayton, Oakley, and Pittsburg; the Contra Costa Water District; and the East Bay Regional Park District. Scheduled for completion in 2004, the HCP/NCCP is intended to benefit 27 special-status species including the California red-legged frog and the giant garter snake. The HCP/NCCP is funded in part by Contra Costa County construction projects with impacts to sensitive habitats. Once approved by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), the HCP/NCCP would establish a funding mechanism to preserve and enhance native habitats that support endangered and sensitive species. A similar mechanism for funding, developing, and preserving wetlands under the HCP/NCCP is under consideration by the HCPA.

[3] A "route of regional significance" is a road that serves regional travel more than local trips.

1.5 Uses of this Document

This environmental document is prepared pursuant to the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations implementing NEPA, and the California Environmental Quality Act (CEQA). This document will be used by federal, state, regional, and local agencies to assess the environmental impacts of the project on resources under their jurisdiction or to make discretionary decisions regarding the project and by responsible agencies that have review and permit authority over the project. It is anticipated that local jurisdictions will use this document in planning processes to depict right-of-way for the alignment on the land use and circulation element maps of their respective general plans.